

## What is Claimed is:

### 1. A utility lighter, comprising:

5 a lighter housing having a fuel-storage cavity for storing a liquefied gas therein, an ignition cavity, an operation cavity and said ignition cavity, and an operation slot formed on said lighter housing to communicate said operation cavity to outside;

a gas valve upwardly extended from said fuel-storage cavity for release said gas therein when said gas valve is uplifted;

an ignition nozzle supported in said ignition cavity and communicated with said gas valve;

10 a piezoelectric unit disposed in said ignition cavity for generating piezoelectricity, wherein said piezoelectric unit has a movable part and a spark generating tip extended towards said ignition nozzle in such a manner that when said piezoelectric unit is compressed, a spark is generated at said spark generating tip for igniting said emitted gas through said ignition nozzle; and

15 a safety device, which comprises:

a pusher button, having a pushing portion, slidably mounted on said lighter housing along said operation slot, wherein when a pushing force is applied on said pushing portion of said pusher button, said pusher button is vertically slid along said lighter housing to lift up said gas valve and to compress said piezoelectric unit at said  
20 same time;

a restraining latch provided at said operation cavity;

a safety rotor, having a blocking latch, rotatably mounted at said pusher button to move between a locked position and an unlocked position, wherein at said locked position, said blocking latch of said safety rotor is aligned with said restraining latch to  
25 lock up said pusher bottom from sliding vertically, and at said unlocked position, said safety rotor is rotated at a direction opposite to a sliding movement of said pusher button

to drive said blocking latch offset from said restraining latch, such that said pusher bottom is adapted to slide on said lighter housing to ignite said utility lighter; and

a resilient element supported at said pusher button to retain said safety rotor at said locked position.

5           2. The utility lighter, as recited in claim 1, wherein said safety rotor is rotatably mounted on said pusher button to define a thumb distance between said safety rotor and said pusher portion of said pusher button, wherein said thumb distance of said safety device is configured for fitting an adult's thumb size which is big enough to downwardly rotate said safety rotor and to upwardly lift up said pusher button in one  
10 sequential manner while a child's thumb size is small to insufficiently reach said safety rotor and said pusher portion of said pusher button at the same time.

3. The utility lighter, as recited in claim 1, wherein said resilient element is a spring strip having a predetermined elastic strength adapted to normally bias against said safety rotor so as to normally retain said safety rotor in said locked position for resisting a  
15 child's thumb from rotating said safety rotor to said unlocked position.

4. The utility lighter, as recited in claim 2, wherein said resilient element is a spring strip having a predetermined elastic strength adapted to normally bias against said safety rotor so as to normally retain said safety rotor in said locked position for resisting said child's thumb from rotating said safety rotor to said unlocked position.

20           5. The utility lighter, as recited in claim 1, wherein said pusher button comprises an actuation member defining said pusher portion thereon, and a transmission member slidably supported in said operation cavity to connect with said actuation button through said operation slot, wherein said transmission member has an upper end engaged with said movable part of said piezoelectric unit and an lower end engaged with said gas  
25 valve in such a manner when said pusher portion of said actuation button is pushed upwardly, said transmission member is driven upwardly to lift up said gas valve and to compress said piezoelectric unit at the same time, so as to ignite said utility lighter.

6. The utility lighter, as recited in claim 2, wherein said pusher button comprises an actuation member defining said pusher portion thereon, and a transmission  
30 member slidably supported in said operation cavity to connect with said actuation button

through said operation slot, wherein said transmission member has an upper end engaged with said movable part of said piezoelectric unit and an lower end engaged with said gas valve in such a manner when said pusher portion of said actuation button is pushed upwardly, said transmission member is driven upwardly to lift up said gas valve and to compress said piezoelectric unit at the same time, so as to ignite said utility lighter.

7. The utility lighter, as recited in claim 3, wherein said pusher button comprises an actuation member defining said pusher portion thereon, and a transmission member slidably supported in said operation cavity to connect with said actuation button through said operation slot, wherein said transmission member has an upper end engaged with said movable part of said piezoelectric unit and an lower end engaged with said gas valve in such a manner when said pusher portion of said actuation button is pushed upwardly, said transmission member is driven upwardly to lift up said gas valve and to compress said piezoelectric unit at the same time, so as to ignite said utility lighter.

8. The utility lighter, as recited in claim 4, wherein said pusher button comprises an actuation member defining said pusher portion thereon, and a transmission member slidably supported in said operation cavity to connect with said actuation button through said operation slot, wherein said transmission member has an upper end engaged with said movable part of said piezoelectric unit and an lower end engaged with said gas valve in such a manner when said pusher portion of said actuation button is pushed upwardly, said transmission member is driven upwardly to lift up said gas valve and to compress said piezoelectric unit at the same time, so as to ignite said utility lighter.

9. The utility lighter, as recited in claim 6, wherein said safety rotor, which is rotatably mounted at said transmission member between said upper and lower ends thereof, has a curved manipulating portion outwardly protruded from said actuation member in such a manner that when said manipulating portion of said safety rotor is rotated to drive said blocking latch offset from said restraining latch, said actuation member is allowed to drive said transmission member to slide upwardly to ignite said utility lighter.

10. The utility lighter, as recited in claim 7, wherein said safety rotor, which is rotatably mounted at said transmission member between said upper and lower ends thereof, has a curved manipulating portion outwardly protruded from said actuation member in such a manner that when said manipulating portion of said safety rotor is

rotated to drive said blocking latch offset from said restraining latch, said actuation member is allowed to drive said transmission member to slide upwardly to ignite said utility lighter.

11. The utility lighter, as recited in claim 8, wherein said safety rotor, which is  
5 rotatably mounted at said transmission member between said upper and lower ends thereof, has a curved manipulating portion outwardly protruded from said actuation member in such a manner that when said manipulating portion of said safety rotor is rotated to drive said blocking latch offset from said restraining latch, said actuation member is allowed to drive said transmission member to slide upwardly to ignite said  
10 utility lighter.

12. The utility lighter, as recited in claim 9, wherein said safety rotor further comprises a retaining stopper which is extended integrally to bias against said resilient element and is arranged to block up a further rotational movement of said safety rotor at a position that said blocking latch is aligned with said restraining latch so as to retain said  
15 safety rotor at said locked position.

13. The utility lighter, as recited in claim 10, wherein said safety rotor further comprises a retaining stopper which is extended integrally to bias against said resilient element and is arranged to block up a further rotational movement of said safety rotor at a position that said blocking latch is aligned with said restraining latch so as to retain said  
20 safety rotor at said locked position.

14. The utility lighter, as recited in claim 11, wherein said safety rotor further comprises a retaining stopper which is extended integrally to bias against said resilient element and is arranged to block up a further rotational movement of said safety rotor at a position that said blocking latch is aligned with said restraining latch so as to retain said  
25 safety rotor at said locked position.

15. The utility lighter, as recited in claim 6, wherein said transmission member has a securing slot formed at an inner side thereof, wherein said resilient element has a biasing end portion and a securing end portion securely mounted in said securing slot of said transmission member to substantially support said biasing end portion of said  
30 resilient element to bias against said safety rotor so as to retain said safety rotor in said locked position.

16. The utility lighter, as recited in claim 7, wherein said transmission member has a securing slot formed at an inner side thereof, wherein said resilient element has a biasing end portion and a securing end portion securely mounted in said securing slot of said transmission member to substantially support said biasing end portion of said resilient element to bias against said safety rotor so as to retain said safety rotor in said locked position.

17. The utility lighter, as recited in claim 14, wherein said transmission member has a securing slot formed at an inner side thereof, wherein said resilient element has a biasing end portion and a securing end portion securely mounted in said securing slot of said transmission member to substantially support said biasing end portion of said resilient element to bias against said safety rotor so as to retain said safety rotor in said locked position.

18. The utility lighter, as recited in claim 6, wherein said restraining latch has a slanted guiding surface formed at a free end thereof to guide said blocking latch of said safety rotor to slide back to said locked position when said pusher button is downwardly slid on said lighter housing.

19. The utility lighter, as recited in claim 7, wherein said restraining latch has a slanted guiding surface formed at a free end thereof to guide said blocking latch of said safety rotor to slide back to said locked position when said pusher button is downwardly slid on said lighter housing.

20. The utility lighter, as recited in claim 17, wherein said restraining latch has a slanted guiding surface formed at a free end thereof to guide said blocking latch of said safety rotor to slide back to said locked position when said pusher button is downwardly slid on said lighter housing.

21. The utility lighter, as recited in claim 1, wherein said restraining latch is formed at a bottom edge of said operation slot such that said blocking latch is normally positioned above said restraining latch to block a downward sliding movement of said pusher button for ignition, wherein when safety rotor is upwardly rotated to drive said blocking latch out of said operation slot that offsets from said restraining latch, said pusher button is allowed to slide downwardly for ignition.

22. The utility lighter, as recited in claim 1, wherein said pusher button has a pusher cavity formed at said pusher portion to communicate with said operation slot, wherein said safety rotor is rotatably supported within said pusher cavity such that safety rotor is rotated at said unlocked position, said pusher portion of said pusher button is  
5 allowed to be pushed upwardly for enhancing said ignition of said utility lighter.

23. The utility lighter, as recited in claim 21, wherein said pusher button has a pusher cavity formed at said pusher portion to communicate with said operation slot, wherein said safety rotor is rotatably supported within said pusher cavity such that safety rotor is rotated at said unlocked position, said pusher portion of said pusher button is  
10 allowed to be pushed upwardly for enhancing said ignition of said utility lighter.

24. The utility lighter, as recited in claim 22, wherein said safety rotor further has a retaining stopper extended within said pusher cavity to bias against an inner wall thereof so as to block up a further rotational movement of said safety rotor to retain said safety rotor at said locked position.

15 25. The utility lighter, as recited in claim 23, wherein said safety rotor further has a retaining stopper extended within said pusher cavity to bias against an inner wall thereof so as to block up a further rotational movement of said safety rotor to retain said safety rotor at said locked position.

20 26. The utility lighter, as recited in claim 24, wherein said resilient element, which is supported within said pusher cavity of said pusher button, comprises a coil spring having two ends biasing against said retaining stopper of said pusher button and said inner wall of said pusher cavity respectively so as to retain said safety rotor in said locked position.

25 27. The utility lighter, as recited in claim 25, wherein said resilient element, which is supported within said pusher cavity of said pusher button, comprises a coil spring having two ends biasing against said retaining stopper of said pusher button and said inner wall of said pusher cavity respectively so as to retain said safety rotor in said locked position.

30 28. The utility lighter, as recited in claim 22, wherein said safety rotor has a manipulating portion positioned below an outer wall of said pusher cavity.

29. The utility lighter, as recited in claim 23, wherein said safety rotor has a manipulating portion positioned below an outer wall of said pusher cavity.

30. The utility lighter, as recited in claim 25, wherein said safety rotor has a manipulating portion positioned below an outer wall of said pusher cavity.

5 31. The utility lighter, as recited in claim 27, wherein said safety rotor has a manipulating portion positioned below an outer wall of said pusher cavity.